



Space News Roundup

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No. 37

NASA acting on blue, red team studies

NASA will undertake a series of broad initiatives and activities to improve the way the agency conducts business and works with its contractors, Administrator Daniel Goldin said last week.

The initiatives represent the work over the past several months of the red and blue review teams, which have been looking at every NASA program on ways to operate faster, better, and cheaper without compromising safety.

"We are committed to strengthening America's belief in NASA as the 'can do' government agency," Goldin announced in a speech to the American Institute of Aeronautics and Astronautics, "and to remaining an institution that

provides inspiration, economic and education benefits to all Americans."

As the teams scrubbed through their respective programs, they were asked to pay particular attention to operational costs that have been growing at an alarming rate.

"We will use those savings to begin planning for new missions, using small spacecraft," Goldin said.

NASA will share its vision, mission and values with America during a series of town meetings, scheduled to begin in November. It also allow prime contractors, small and disadvantaged businesses and the university community to express

their views. Planned locations include Hartford, Conn.; Raleigh-Durham, N.C.; Tampa, Fla.; Indianapolis, Los Angeles and Seattle.

Safe space shuttle missions are NASA's top priority, Goldin said. NASA is working to make the shuttle system safer and more reliable, including making investments in new displays to optimize flight controller's tasks, investing in hardware improvements, improving engine safety and developing state-of-the-art avionics.

NASA's goal, Goldin said, is "the continuation of a safe, robust shuttle program into the early part of the next century, with a maximum of eight flights per year."

NASA's second priority is Space Station *Freedom* and the agency is taking steps to ensure its top talent is working on this program, he said. In addition, it expects contractors to put their best people on the program.

To ensure that there is complete cooperation among the contractors working various contracts, NASA is examining the idea of setting aside a portion of the space station contractors' award fee and establishing a pool.

"The fee paid from this pool would be awarded based on how well the contractors are working as an integrated team in meeting milestones and

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Spacelab-J returns bonus science runs

By Kari Fluegel

Endeavour may be back in the hangar, but for the STS-47 principal investigators, Spacelab-J work has just begun.

The STS-47 crew ended its mission at 7:53 a.m. Sunday with a smooth landing at Kennedy Space Center. Flight controllers opted to delay the deorbit burn for one orbit to allow weather observers better lighting conditions, but *Endeavour* landed under blue Florida skies.

As soon as crew members left the vehicle, technicians began unloading the Spacelab experiments and returning them to the 43 investigators.

STS-47



ENDEAVOUR

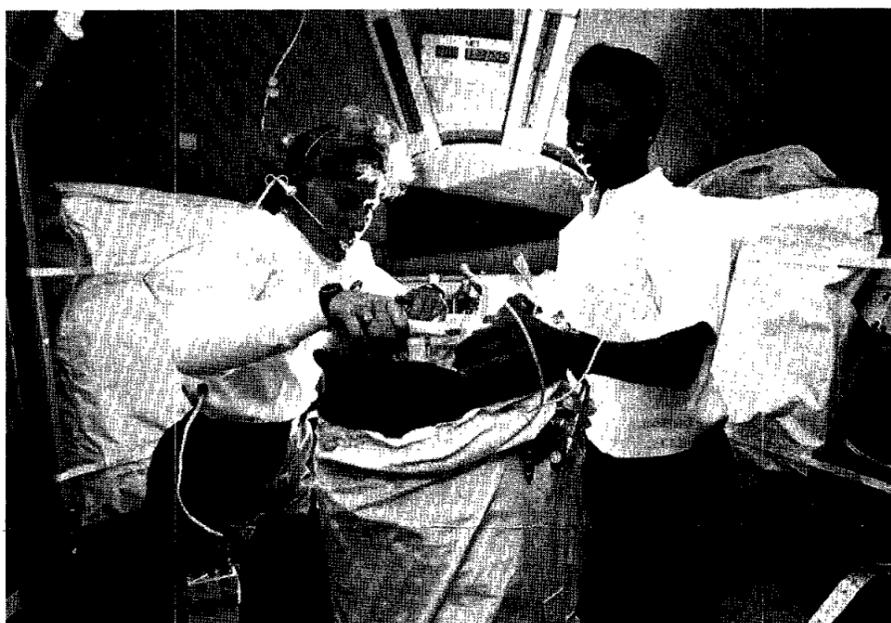
"All the experiments that we planned to run on board were carried out," said Dr. Fred Leslie, Spacelab-J mission scientist. "In fact some extra ones were actually run. This is due in part to the excellent work of the operations people on the ground as well as the on-board crew, who at their own request, often went on working beyond their shifts to complete the day's activities."

Of the 43 investigations, 24 focused on materials science including the Continuous Heating Furnace which processed 30 metal alloy and semiconductor samples, Leslie said.

The Large Isothermal Furnace processed four samples with the Gradient Heating Furnace processed its scheduled three and the Image Furnace four.

Though Leslie said there's room to improve the technique of using acoustic

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NASA Photo
STS-47 Mission Specialists Jan Davis, left, and Mae Jemison work with the Lower Body Negative Pressure device aboard *Endeavour*. Davis and Jemison made up the blue shift science team in the Spacelab-J module.

Spacelab-J elicits 'happy thoughts'

STS-47 Commander Hoot Gibson told a welcoming crowd of friends, family and co-workers Sunday that the crew felt privileged to be part of the first joint American-Japanese mission.

Endeavour ended its second flight at 7:53 a.m. Sunday on Kennedy Space Center's Shuttle Landing Facility. The smooth landing capped a 7 day, 22 hour, 30 minute flight that was extended one day to reap additional science data.

"This was a real milestone, being the half-century mark — the 50th space shuttle mission, and we were very privileged to be part of this mission, to be part of a joint flight with the Japanese and to take part in so many scientific experiments," Gibson said at the traditional Ellington Field homecoming. "I think it's probably going to take us years to get the answers to all of the data that we gathered."

All of the STS-47 crew members voiced

admiration and thanks for the cooperation of NASDA, the Japanese space agency that was NASA's partner on the eight-day microgravity research flight — and especially for the hard work and expertise of Japanese Payload Specialist Mamoru Mohri.

"I know Japan is going to have a great space program with the experience Dr. Mohri has gained this last week," Pilot Curt Brown said. "He's a very impressive man."

Speaking both in English and Japanese, Mohri said he was especially pleased to be part of a mission that will build a lasting friendship between the United States and Japan and advance the evolution of space development and exploration for the world.

"A lot of happy thoughts helped me to fly high in space," Mohri said. "One happy thought had to do with a wonderful team, teamwork and team spirit always shown by

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Columbia set to roll to pad tomorrow

By James Hartsfield

While fresh-from-space *Endeavour* was being hauled off KSC's runway Sunday, *Columbia* was pulled from its hangar to be pointed skyward in preparation for the next shuttle launch perhaps as little as three weeks away.

Endeavour was parked inside the Bay 1 processing hangar about 3:45 p.m. Sunday, and *Columbia* was in place inside the Vehicle Assembly Bldg. by 1 p.m.

Columbia is planned to be moved to Launch Pad 39B early tomorrow, gearing up for a mid-October launch on shuttle mission STS-52 to deploy the Laser Geodynamics Satellite II. A flight readiness review, the final, thorough look at the progress of all mission preparations, is scheduled for Oct. 6, after which a firm launch date will be announced.

Elsewhere, *Discovery* is being readied for a mid-November launch on STS-53, a Department of Defense mission. This week, technicians in the Vehicle Assembly Bldg. stacking the solid rockets for *Discovery*'s flight found a pinhole leak between two just-joined segments of the right-hand booster during a standard leak check. The segments were taken apart and the three O-ring seals replaced. The leak was thought to have been caused by a pinched piece of rubber filler material. Another leak check will be performed as always once the seals are replaced and the segments rejoined.

In the Bay 3 hangar, workers this week removed the left orbital maneuvering system pod from *Discovery* to repair a contaminated valve. Also, the main landing gear wheels and tires were installed and the liquid hydrogen plumbing in the engine compartment was tested.

Atlantis is in the Bay 2 processing hangar being readied for a piggy-back flight to California where it will undergo a year of modifications and upgrades, including the possible installation of a Russian-built docking system so the shuttle may dock with the Mir space station. *Atlantis* is scheduled to leave for Rockwell's Palmdale, Calif., shuttle factory Oct. 17.



COLUMBIA

Shuttle cockpit to be updated

NASA awards contract for state-of-the-art displays

By Kari Fluegel

NASA recently signed a \$59.3 million supplemental agreement with Rockwell International's Space Systems Division, Downey, Calif., for the design, development, test and evaluation of a new system to update space shuttle orbiter cockpit displays.

JSC's Orbiter and GFE Projects Office is managing the project for the Space Shuttle Program Office.

The Multifunction Electronic Display Subsystem will be an upgrade from the existing electro-mechanical flight instruments, multifunction cathode ray tube display subsystem and dedicated display subsystem.

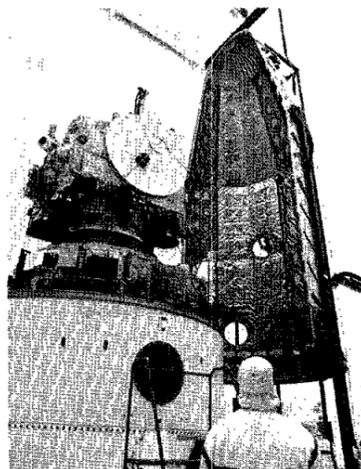
The MEDS display will provide state-of-the-art, color, multifunction interfaces between the flight crew and flight comput-

ers, providing astronauts with altitude, air-speed, heading and vehicle attitude information.

The system will be retrofitted into the orbiter fleet providing uncluttered control panels. It will provide multifunction and full-color displays, high reliability and safety, reduced operating costs and increased performance capabilities of the orbiter vehicle displays and support devices.

In addition to the design, development, test and evaluation costs, a ceiling of \$89.3 million has been set for production. A final cost will be negotiated after the critical design review.

Work will be completed at Rockwell's Downey, Calif., facility and at the Glendale, Ariz., facility of Honeywell Inc., Satellite Systems Operations.



NASA Photo
Mars Observer and its Transfer Orbit Stage were encapsulated in a Titan III nose fairing last month at Kennedy Space Center.

Mars Observer launches today from Cape Canaveral

Mars Observer—a probe that will help scientists plan for future human missions to the Red Planet and better understand the evolution of Earth's environment—is scheduled to launch today on a Titan III rocket from Cape Canaveral Air Force Station in Florida.

Kennedy Space Center technicians verified that all systems are functioning well with a dress rehearsal last Friday and reaffirmed today as the launch target.

The launch window on Friday opens at 11:27 a.m. CDT and closes two hours later at 1:27 p.m. The window opens about seven minutes earlier each successive day. NASA Select television launch coverage will begin at 10 a.m. today.

Mars Observer's 11-month trip to the Red Planet will depend on the first use of the Transfer Orbit Stage booster. Once at Mars, the satellite will orbit for a full Martian year — 687 days — transmitting detailed information and photographs of the planet's surface.

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JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays. For more information, call x35350 or x30990.

Texas Renaissance Festival (9 a.m.-6 p.m. weekends Oct. 3-Nov. 15): Adult, \$9.25; child (5-12): \$5.55. Festival bus trip (Oct. 24, Nov. 7): One-day trip; adult, \$15; child (ages 5-12), \$10; child (under 5), \$7.

Wings Over Houston Air Show (Oct. 3-4 at Ellington Field): One-day; Adult, \$7; Children 6-11, \$2.

Deep Sea Fishing Trip (Oct. 17): \$45 to fish, \$20 to ride.

Metro tickets — Passes, books and single tickets available.

Fiesta Texas Park (San Antonio): Buy one, get one free. Adult, \$19.50; child 4-11, \$13.55.

Sea World (San Antonio): Adult, \$18.90 (child free with paying adult); child 3-11, \$13.55.

Astroworld: \$16.95 and \$14.95 (child under 54 inches), \$44.95 (season pass) and Waterworld, \$9.50.

Six Flags: \$16.95 (one-day) and \$22.95 (two-day).

Movie discounts: General Cinema, \$4; AMC Theater, \$3.75; Loews Theater, \$4.

Stamps, Walt Disney Club memberships also available.

JSC

Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

EAA badges — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday through Friday. Dependents must be between 16 and 23 years old.

Weight Safety — Required course for employees wishing to use the Gilruth weight room is offered from 8-9:30 p.m. Oct. 8. Pre-registration is required; cost is \$5.

Defensive driving — Course is offered from 8 a.m.-5 p.m. Oct. 10. Cost is \$19.

Aerobics — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24.

Aikido — Martial arts class meets Tuesdays from 6:15-8 p.m. Cost is \$15 per month.

Fitness program — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed exercise program. Call Larry Weir, x30301.

Ballroom Dance — An eight-week class will begin Oct. 1. Cost is \$60 per couple and enrollment is limited.

Fiction Workshop — A five-week fiction workshop will be offered from 6:30-9 p.m. Wednesdays at the Gilruth Center beginning Oct. 7. Cost is \$80.

Volleyball workshop — A volleyball workshop will be offered Saturdays from Oct. 3-Nov. 21. A women's session will be held from 12-2 p.m., and a men's session from 2-4 p.m. Cost for the six-week course is \$25.

Intercenter Run — JSC runners may now participate in the fall Intercenter Run competition among NASA centers. Participants may run or walk a two-mile or 10-kilometer course and turn their times into the Gilruth Center. All eligible participants will receive a free T-shirt.

JSC

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale: Baywind I condo, 2-2 split plan, FPL, new AC, fans, Jim, x33821 or 554-4357.

Lease: Shoreacres, 4-2-2, lg fenced yard, no pets, \$650/mo. + dep. 488-5501.

Lease: Green Arbor, 3-2-2, \$625/mo. Minh, 333-6806 or Oanh, 484-2456.

Sale: Alvin, 2-1-1, 5 acres, fenced, trees, barn, horse stalls, pecan/pear orchard, \$115K. Scott, 331-6847.

Sale: Pipers Meadow, 4-2-2, 2-story, FPL, fans, new carpet, vinyl, wallpaper, \$74.9K. Greg, 286-0356 or 470-0433.

Sale: Cedar Point/Lake Livingston, double lot w/small cabin, elec, water, AC, \$6.9K. Rich, x36900 or 332-7399.

Rent: Tranquility Lake, 3-2-2CP, W/D, refrig, security gate. 333-4917.

Rent: Galv condo, furn, sleeps 6, Seawall Blvd & 61st St, wkend/wkly/daily, Magdi Yassa, 333-4760 or 486-0788.

Sale: Friendswood, Lux French country estate, 4-3.5-3D, located on 5.7 acre, another 5.3 acre avail, \$365K. x39250 or 996-8471.

Sale: Galv Island beach house, 3-2-1, CA/h, furn, Ed Sumilak, x37686 or 326-4795.

Rent: Galv beach house, d/w, cent air, furn, Ed Shumilak, x37686.

Sale: Clear Lake Shores, 3-2-3, 2-story, remodeled, vaulted ceiling, loft, trees, boat slip, \$130K. 538-1849.

Sale: Dickinson, FM517W, 3-3-2, 2200 sq ft, lg game/guest rm, 1 acre, well, septic, \$77K negotiable. 534-6641.

Sale: Bentwood/Conroe, lot, includes country club and yacht club memberships. Mike, 482-8058.

Cars & Trucks

'84 Bronco II XLT, 4 x 4, red/tan, \$3.5K. Mike, 333-2335.

'59 Chevy PU, \$900; '80 Chevy Van, \$1250. 334-2335.

'87 Toyota Corolla GTS, dark blue, 5 spd, tint, low miles, records, nonsmoker, ex cond, \$5.8K. 283-4491 or 997-1676.

'78 Honda Accord, \$850. 286-6984.

'89 Ford Tempo, fully equipped, low mi. Robert, 472-6323 or Tamela, x36155.

'89 Chevy PU L.W.B., fiberglass Topper 89, reasonable. x32236 or 484-6917.

'80 Comuta-car, elec, road licensed, 40 mi. range, spd to 40 mph, onboard charger, fresh batt, \$995. 538-1437.

'89 BMW 325i, 55K mi, assume 14 mo. lease, new tires, ex cond, \$333/mo. Steve, 333-7783 or 992-5108.

'65 Mustang GT K coupe, partially restored, needs brake lines, fuel lines, int, rebuilt suspension w/4 wheel discs, Konis, etc, \$3.6K. Bob, 488-5590.

'91 Chrysler Lebaron Coupe, red, auto, alarm, 33K mi, 2.3L eng, \$8.8K negotiable. 286-7046.

'79 Plymouth Volare station wagon, wht, 318 eng, needs minor body work, runs good. Magdi Yassa, 486-0788 or 333-4760.

'87 Mazda B2000 PU, AM/FM/cass, amp, cherry red, 5 spd, \$2.7K OBO. Toby, 332-9720.

'86 Jeep CJ-7 Renegade, 6 cyl, 5 spd, PS/PB, tilt, extra range tank, recent soft top & bikini top, 38K mi., \$6K. x32813 or 286-8456.

'82 Honda Accord LX, 3 dr, 5 spd, AC, needs engine work, \$500. Larry, x34454.

'86 Pontiac Grand AM, good cond, price negotiable. 486-7111.

'87 Toyota Corolla, 4 dr, tan, auto, AC, tint, AM/FM, new brakes, batt, ex cond, \$3950. Shelly, x30832.

'76 Chevy Nova, 4 dr, AC, auto, well maintained, runs well, 49K mi, \$1.5K negotiable. Rhonda, x39188 or 332-9224.

'88 Mazda MX6, silver/blue, ex cond, \$5990. 488-9020 or 286-5945.

'89 Acura Legend Coupe, 21K mi, bluebook \$20K, loaded, ex cond, \$18.5K. Elliott, x37487 or 486-0902.

'88 Chevy Cheyenne PU, wht w/blue pin-strips, 5K mi on new 4.3L V6 eng, new tires, AM/FM, AC, \$7K OBO. James, x30291 or 337-4440.

'90 Mazda Protege, 1.8 motor, 4 dr, take over pymts \$298/mo at JSC Credit Union, \$8K on note. x32949.

Boats & Planes

15' boat w/trlr, 55 HP Chrysler O/B, \$750. 334-2335.

16' fiberglass boat w/Sportsman trlr, 85 HP, best offer. Joe, 333-4743 or 409-945-9801.

Bicycle aero-design racing wheels, rims, bladed spokes, dura-ace hubs, 6 spd dura-ace free-wheel, \$450. Steve, 333-7783 or 992-5108.

Boston Whaler sailboat, Harpoon 4.6, galv trlr, good cond, \$1995. 337-4492.

'90 Monarch Bass boat, 15'6", 25 HP Mariner, front & rear raised swivel seats, trolling motor, galv trlr, fish finder, console driven, \$2850. 337-5962.

17' Bass boat, 120 Chry motor, rebuilt, loaded, \$2.9K. 409-925-1536.

'75 Hobie Cat, 16' w/ib, main sail, galv trlr, good cond, \$800. 337-1491.

Cycles

'91 Suzuki 1100 Katana, ex cond, \$6K negotiable. x38976 or 409-925-5230.

Honda three wheeler, 250R motor, \$350. x32949.

Audiovisual & Computers

2-1 MB SIMM's for Mac II, both for \$50. 280-1579 or 482-5536.

Panasonic Pro-video camera, 2 video recorder/players, editing console, special effects generator, color processor, color monitor, 8mm movie projector, lighting kit, tripod, access, best offer. Ed, x36969 or 332-0442.

Color TV, Magnavox 20" w/remote, onscreen graphics, cable ready, \$280; Music System for beginner, Tascam/Tec 4 track recorder w/mikes and cables, Crate CR-160 amp, Siel DK 600 Synthesizer, Calazone hard-side traveling case, \$1.2K. 528-3715.

Commodore 64, MPS 803 printer, 1530 datasette unit, Commodore compatible enhancer 2000 disk drive, various software, all for \$150. x33787 or 332-5725.

JSC

Dates & Data

Today

Cafeteria menu — Special: tuna and salmon croquette. Entrees: pork chop with yam rosette, Creole baked cod. Soup: seafood gumbo. Vegetables: Brussels sprouts, green beans, buttered corn, whipped potatoes.

Monday

Cafeteria menu — Special: Italian cutlet. Entrees: braised beef ribs, chicken a la king, enchiladas with chili. Soup: cream of broccoli. Vegetables: navy beans, Brussels sprouts, whipped potatoes.

Tuesday

Training workshops — Two training workshops on "Managing Conflict and Change" and "Using Stress Positively" will be offered to JSC employees at 8:30 a.m. and 1 p.m., respectively, Sept. 29 in the Gilruth Center Ballroom. M. Manning, Ph.D., will speak. For more information, call Pam Adams at x33761.

Cafeteria menu — Special: stuffed cabbage. Entrees: turkey and dressing, round steak with hash browns. Soup: beef and barley. Vegetables: corn cobbette, okra and tomatoes, French beans.

Wednesday

IEEE video conference — The Institute of Electrical and Electronics Engineers Galveston Bay Section will present a video conference on "Emerging Technologies: Will Your Companies Be Ready?" at 11 a.m. Sept. 30 at the Gilruth Center. Cost is \$50 for members and \$15 for student members. For more information call Andy Lindberg, x31474.

Training workshop — A training workshop on the use of mnemonics will be offered to JSC employees from 8:30 a.m.-4 p.m. Sept. 30 in the Gilruth Center ballroom. Hermine Hilton will discuss "Total Recall." JSC Acting Director Paul J. Weitz will present the 1992 Virginia B. Hughes Equal Opportunity Award at 4 p.m., with a reception following. For more information, call Pam Adams at x33761.

Astronomy Seminar — JSC Astronomy seminars will host a luncheon meeting from noon to 1 p.m. Sept. 30 in Bldg. 31, Room 129. Guest speaker will be Dr. Larry Friesen discussing "Observations from the World Space Congress." For more information, contact Al Jackson at 333-7679.

Toastmasters meet — The Spaceland Toastmasters Club will meet at 7:15 a.m. Sept. 30 in the Bldg. 3 cafeteria. For more information, call Darrell Boyd at x36803.

Cafeteria menu — Special: pepper steak. Entrees: catfish with hush puppies, roast pork with dressing. Soup: seafood gumbo. Vegetables: broccoli, macaroni and cheese, stewed tomatoes.

Thursday

Cafeteria menu — Special: chicken fried steak. Entrees: beef tacos, barbecue ham steak, Hungarian goulash. Soup: turkey and vegetable. Vegetables: spinach, pinto beans, beans.

Oct. 2

Cafeteria menu — Special: tuna and noodle casserole. Entrees: liver and onions, deviled crabs, roast beef with dressing. Soup: seafood gumbo.

Vegetables: whipped potatoes, peas, cauliflower.

Oct. 3

Fall Star Party — The JSC Astronomical Society and the Challenger 7 Park are sponsoring a free Fall Star Party from dusk to 10 p.m. Oct. 3. Telescoped, movies and other activities will be available. The event is open to the public and will be held at Challenger 7 Park off NASA 1 West. For more information, contact Bill Williams at 339-1367.

Oct. 5

Windows seminar — JSC's Information Systems Directorate will host a Microsoft Windows 3.1 technical seminar from 12:30-4:30 p.m. Oct. 5 in the Gilruth Center ballroom. For more information, call Dianne Robinson at x37595.

Oct. 7

Astronomy Seminar — JSC Astronomy seminars will host a luncheon meeting from noon to 1 p.m. Oct. 7 in Bldg. 31, Room 129. Guest Speaker will be Dr. Karl Henize discussing "Slow Motion Meteor Observed by Geodss." For more information, contact Al Jackson at 333-7679.

Toastmasters meet — The Spaceland Toastmasters Club will meet at 7:15 a.m. Oct. 7 in the Bldg. 3 cafeteria. For more information, call Darrell Boyd at x36803.

Oct. 14

Astronomy Seminar — JSC Astronomy seminars will host an open discussion luncheon meeting from noon to 1 p.m. Oct. 14 in Bldg. 31, Room 129. For more information, contact Al Jackson at 333-7679.

Swap Shop

Software plus manuals, Microsoft Works, LotusWorks, new, \$50/ea. 488-4487.

Sound design stereo rack system w/turntable, 10 band equalizer, speakers, dual hi-speed dub cassette deck, AM/FM tuner, \$90 OBO; 27" Sylvania stereo tv, best offer. Ray, 283-5824.

Juliette AM/FM/8 track stereo recorder w/turntable, speakers, \$30 OBO; Juliette AM/FM/8 track stereo w/speakers, \$20 OBO; Sony Betamax VCR, make offer. Ray, 283-5824.

286 Clone, 1 MB RAM, 3.5 & 5.25 FD, 2 ea 20 MEG HD, hercules graphic w/monitor, 1200 baud modem, mouse, software, \$450. Rich, x36900 or 332-7399.

Stereo components, Radio Shack amp, cassette tape deck, both need some repair, make offer. Bob, x32193 or 326-3984.

Photographic

Bronica ETRS medium format camera, 75mm Zenzenon lens, waist level finder, prism finder, 220 film back, \$1085; Canon AE-1 in Ikelite underwater housing, \$375. Kevin, 486-6411 or 532-1409.

Pets & Livestock

Sheltie pups, shots, wormed, sable/white, miniature collies, 6 wks old, \$135. 771-1012 or 334-2335.

Baby birds, cockatiels, parakeets, hand fed. Linda, 484-7834.

Dog pen, 6x3x6 chain link fence w/wooden floor, wooden roof, \$50 OBO. x33814 or 486-9760.

Bobwhite & Cortunix Quail, eggs, chicks, adults. Ken, x45152 or 409-925-4438.

Rabbits, mini lops, fuzzy lops. Gailo, 554-6200.

AKC Cocker spaniel puppy, born 5-10-92, \$135. Tamela, x36155 or 998-8859.

AKC Lhasa Apso pups, born 6-3-92, parents on premises, \$200-225. Nancy, x33408 or 286-8154.

2 cockatiels, 1 male, 1 female w/cage, accessories, \$135. Brenda, 486-0255.

Musical Instruments

Silver Miyazawa flute, low B, model 95S, RH, \$750; Beginner's Gemeinhart flute, \$175. 488-4915.

Roland EP-7 digital piano, 76 velocity sensitive, weighted keys, sustain pedal, stand, headphones, instruction books, \$800. x32813 or 286-8456.

Kawai 7' grand piano, GS-60, Polish Ebony, 2 yrs old, 10 yr full warranty transferable, \$13.5K OBO. Joe, 244-5731 or 946-8198.

Household

Drexel, Et Cetera collection, china/bookcase breakfast, 56" x 14" x 79", blk lacquer, silk-screen chinoiserie, \$1.2K. Bernice, 480-1866 or 486-2602.

Persian carpet, 100% silk, handmade, 3.5 x 5.5, wall masterpiece, \$4K; Persian carpet, wool w/silk flowers, handmade, 10 x 12, \$3.5K. 488-0345.

GE lrg capacity gas dryer, 3 yrs old, \$200. Donna, 283-9358.

Twin bed, box springs w/bookcase headboard, good cond, \$100. Alan, x38854 or 486-4243.

Antique finished collectible cabinet, 40 x 28 x

19, circa 1930's, \$195; set of six Lafayette Legacy 1776-1976 collection plates, \$120/set; 2 bar stools, swivel seat, \$25/pr. 488-4487.

Color tv, \$60; student desk, \$40. J.P., x34372 or 333-4222.

Bed, headboard/footboard, box springs, matt, \$150. 488-2101.

GE self cleaning elec range, \$250; Singer sewing machine/wood cabinet, \$150; Sofa/2 matching chairs, \$675; formal solid oak dining table, 6 chairs, lighted china cabinet, \$850; beige fabric Lazy Boy recliner, \$250. 486-5226.

Blk sofa, love seat, chair, \$400; 3 tables, \$400; entertainment center, \$450, Lisa, 996-0042.

Solid oak coffee table, 2 end tables, \$20/ea; 2 oak lamps, \$10/ea. Karen, 480-1658.

Cherry wood china cabinet buffet table, 4 chairs, \$500 negotiable; oriental bedroom, complete queen sz bed, nightstand, double dresser w/double mirrors, ex cond, \$200. Kim x31441 or 721-8654.

Wanted

Want 14' alum "V" bottom rowboat, trlr optional. Hal, x36890 or 941-0167.

Want King/Yamaha coronet. Debbie, x34231 or 331-5772.

Want exp baby sitter in Clear Lake, close to NASA, for infant in your home or mine, refs please. Vickie, x35444 or 326-2754.

Want inexpensive work car, minor repairs OK. 486-4700 or 280-2239.

Want nonsmoking female roommate to share 3 BR house in El Lago, \$350/mo + 1/2 util. Brenda, x36037.

Want used congo or bongo drums, James, x36222 or 481-8077.

Want steel guitar, keyboard player for forming C&W band. x39277 or 554-6813.

Want vanpool from S. Braeswood at S. Post Oak to NASA area. Richard, x37557.

Want '84 or earlier remote unit for Sears garage door opener, working nor not. 326-2307.

Want nonsmoking female roommate to share house in Clear Lake, \$250/mo + 1/3 util. Theresa, 333-6491 or 480-0980.

Want roommate to share 2-2-2 TH in Bal Harbour, Nassau Bay, nonsmoker, no pets, pool, tennis courts, clubhouse. 335-0112.

Want carpool riders from Heights to JSC. x35785 or 861-6646.

Want small utility trlr for auto, Coleman-type preferred. Mike, x31239 or 992-3522.

Want 2-3 roommates to share 4 BR house off Pineloch, \$290/mo + util, no pets, nonsmokers. Jeff, 335-4320 or 480-1242.

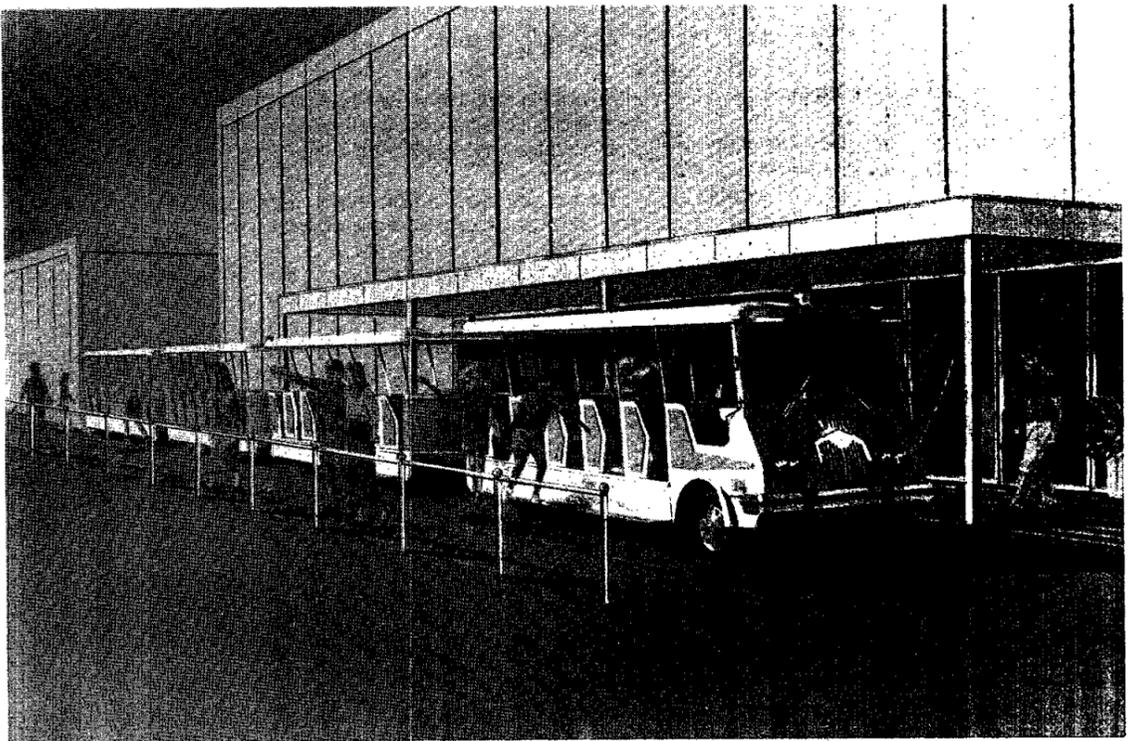
Want good filter and pump for above ground pool, pool vacuum for pool; bumper pulled low-bay utility trlr, 6' x 16', good shape. Herman, x35095 or 409-389-2461.

Miscellaneous

Riding mower, 8 HP, 40" cut, \$275; washer & dryer, \$175/pr. 334-2335.</

A New Era of Experiences

JSC employees get weekend to preview Space Center Houston



By Kelly Humphries

At 4:30 p.m. Oct. 15, the doors to Bldg. 2 — JSC's Visitor Center since 1964 — will close to the public for the last time, bringing to a close an era of open house visiting that has allowed some 26 million people to share the wonder of America's space program.

At 10 a.m. Oct. 16, the doors to Space Center Houston — the Manned Space Flight Education Foundation Inc.'s new visitor center — will officially open to the public for the first time and begin a new era that allows people to experience "the closest thing to space on Earth."

JSC employees will get a special preview of Space Center Houston the weekend of Oct. 10-12. All civil service employees should have received two vouchers in their leave and earnings statement, specifying a morning or afternoon visit on one of those days. A block of tickets also is being given to each support contractor. NASA retirees should call the NASA Exchange manager at x38970 for one ticket each on a first-come, first-served basis.

Employees must present their vouchers at the ticket counter for the time period specified on the voucher. Employees are encouraged to share or trade vouchers so that as many as possible may take advantage of the opportunity, said JSC Administration Director William Kelly.

"Don't miss this opportunity," said Hal Stall, MSFEFI president and JSC director of public affairs. "This is your chance to kick the tires, slam the doors and look under the hood of Space Center Houston. I think you'll be impressed."

While employees are checking out the Space Center Houston attractions, public visitors to JSC will come into the center and be invited to visit the Bldg. 2 Visitor Center and other buildings as usual. Visitors will be routed to parking south of the Bldg. 2 Visitor Center, however.

After Space Center Houston opens, employees will be able to buy tickets from the JSC Exchange Store at the lowest rate available to any group — \$7.50 for adults and \$4.50 for children ages 3-11. The normal rate is \$8.75 for adults and \$5.25 for children. Annual passes, which include a photo, will be available at Space Center Houston for \$26.25 for adults and \$15.75 for children.

The tickets purchased at the Exchange Store in Bldg. 11 will be for personal use only, not for commercial use or groups. The Bldg. 3 gift shop will be closed when Space Center Houston opens.

Employees may also buy commemorative tickets, suitable for framing, for \$8.75. The tickets may be used for one admission to Space Center Houston at any time.

While employees will have to pay to visit Space Center Houston after the grand opening, they still will be able to bring their family and friends on site for unofficial visits under the center's new unofficial visitor policy. They will be able to take their visitors to their work area and into any JSC building as long as they follow the rules in JSC Announcement 92-53.

Official visitors still will need to stop at Bldg. 110 and have a temporary car pass issued after calling their JSC sponsor.

The advent of Space Center Houston will mean some changes around JSC — probably the most obvious of which is that no unstickered vehicles will be allowed on site

and visitors will no longer be allowed to tour the center without an escort. All visitors who do not have an employee escort will be restricted to Space Center Houston trams and their planned stops at Rocket Park, Bldg. 30, Bldg. 32, Bldg. 9, and Bldg. 29.

"The trams probably are going to be the biggest impact to the employees," said JSC Security Officer Ron Wade. "They will slow traffic down some because they're going to be running every 5 minutes at 6 or 8 miles an hour. Have patience."

On the other hand, when visitors start using the trams they will not be driving their individual vehicles on center streets or

parking in JSC parking lots. The change is expected to free up about 200 parking spaces.

JSC employees will not be allowed to use the trams as a mode of transportation around the site.

Other visible changes include the addition of visitor walk ways and tram stops at the JSC

buildings that will be visited by trams. The biggest of those projects is the addition of an elevated walkway along the north side of Bldg. 9 that will give tram tourists a view of the shuttle and space station mock-ups without disrupting work on the floor of the building where simulation schedules are expected to become more and more demanding.

All of the construction projects should be completed by the time Space Center Houston opens.

Since tram visitors will be rerouted to the new Space Station Control Center in Bldg.

30S during shuttle missions, badged JSC and contractor employees still will be allowed to take friends and family members into the Mission Control viewing room on a schedule established before each flight.

All of the changes to JSC's traffic pattern won't be completed until March, when Metro is scheduled to finish the new main entrance to JSC across NASA Road 1 from the Nassau Bay City Hall. However, the four-lane upgrade to Saturn Lane — including the overpass that crosses the tram road — should be at least partially open by Oct. 15.

Metro also is building a new, four-lane Avenue E roadbed that runs just south of the new badging building, Bldg. 110. After it is complete, the old Avenue E will be closed to traffic and removed.

"JSC and Space Center Houston are working together to mitigate the inconveniences to the employees and contractors because of roadwork, trams and the opening of new buildings to the visitors," said Center Operations Deputy Director Grady McCright.

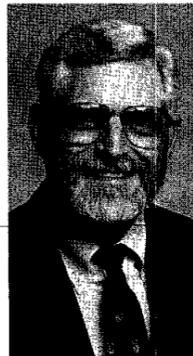
Signaling the completion of the projects will be the erection of a new, larger welcoming sign at the new JSC main entrance. The old sign will be relocated to Rocket Park, and Space Center Houston visitors will pass by it on the tram tours.

Bldg. 2, the old JSC Visitor Center, will be refurbished beginning in March. When the work is completed, Teague Auditorium and the north foyer will revert to an employee activity center. JSC's Public Services Branch plans to put together a historical display for employees on JSC's contributions to the country's major space flight programs using artifacts from each. The south section will become a media center and educational briefing facility, and the mezzanine will become the new Teacher Resource Center.

Within the next couple of weeks, Space Center Houston will begin staffing a display in Bldg. 2 to explain to tourists the upcoming changes to the visitor program. □

'This is your chance to kick the tires, slam the doors and look under the hood of Space Center Houston.'

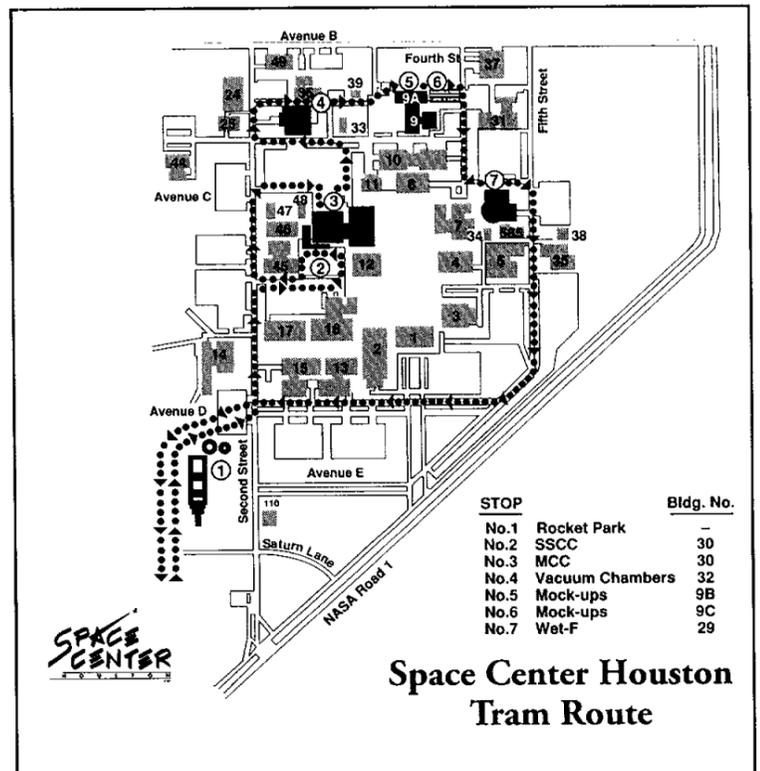
— MSFEFI President Hal Stall



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Top: An artist's concept drawing shows Space Center Houston visitors stepping down from a tram outside the Bldg. 30S Space Station Control Center. Left: JSC's new main entrance will sport a bigger sign — preservationists should note that the old sign will be saved and relocated near Rocket Park. Right: A map of the route Space Center Houston's trams will follow.

Goldin says NASA changing how it does business

(Continued from Page 1)

cost estimates," Goldin said.

NASA discussed its final proposed policy on award fee contracting with the NASA-Industry Process Action Team this week and expects to issue a policy for comment in early October.

NASA will establish a new independent group — as recommended by the Augustine Committee — staffed with sufficient resources and modern cost estimating tools, to help ensure its cost estimates are accurate.

Goldin said NASA "can no longer afford broken promises." According to a General Accounting Office report, in a sample of 29 NASA programs, the average cost growth was 75 percent.

"We can not tolerate contracts so fluid, that the product we bargained for in no way resembles what we end up with," Goldin said. "We are part-

ners with industry, but we will hold you [contractors] accountable for what you sign up to deliver and ourselves accountable for establishing firm requirements."

Aeronautics also is a high priority, Goldin said, and NASA must forge a joint vision with its partners in industry of where we should be heading in commercial aeronautics. The red and blue teams recommended that NASA better balance its programs between advanced subsonics, National Aero Space Plane hypersonics and high speed civil transport.

Goldin said he will meet next month with the CEOs of the largest airframe and engine manufacturers to brainstorm and discuss NASA's assessment of aeronautics priorities.

Delivery on the Earth Observing Systems, the Advanced X-Ray Astrophysics Facility, and

Cassini science missions is another high priority.

The red and blue team reviews show the development of suitable instruments is affecting NASA's ability to accomplish these programs on time and within cost estimates.

By rescoping and incorporating 'common designs' NASA should save \$3 billion on EOS while preserving the essential science objectives and launch schedule of the main spacecraft.

AXAF has been restructured into two smaller platforms that will return the same science. The Imaging AXAF mission will be launched into a high-Earth orbit, allowing simpler and less expensive support systems for power, communications and pointing control. The small, or spectroscopic, mission will be flown on a Delta class rocket to low-Earth orbit.

Fundamental changes will be made in the

management approach for the Cassini mission to Saturn. Technical managers will be empowered to act as project managers for their subsystems. Projected staffing levels will be reduced by more than 700 work-years.

Goldin said NASA will perform the precursor work to ensure the Space Exploration Initiative goals are achievable, focusing on small probes.

"Our goal is to build a credible program in the short term, and with that foundation, work toward more substantial funding in future years."

The blue team recommended changes to the National Launch System baseline, which are being coordinated with the Department of Defense. They include reassessment of facilities needed, engine-out requirements for multi-engine configurations, and acceleration of vehicle development.



592-46203

STS-47 Mission Specialists Mark Lee and Jan Davis are reunited with canine pal Buddy at the Endeavour crew's welcome home ceremony at Ellington Field on Sunday.

JSC Photo by Jack Jacob

STS-47 crew appreciates teamwork

my fellow crew members of STS-47. Another happy thought stemmed from a grateful appreciation I felt for the strong help provided by the many staff support teams in both the United States and Japan."

All of the crew members also reported that teamwork had been the glue that held the mission together.

"To me, the great thing about space flight is not so much the thrill you get from it yourself, but the teamwork that's exhibited," said Payload Commander Mark Lee. "We had a lot of curves that were thrown at us during the mission, we came up with probably a record number of IFMs (in-flight maintenance procedures) for different problems."

The shuttle and payload teams

worked together to resolve each of them, he said, and "the result was a great mission."

Mission Specialist Jay Apt voiced special appreciation to the training team that had helped the orbiter crew provide a stable mother ship in which the payload crew could work.

"The confidence I had in being able to work the orbiter systems was due to a lot of you folks who spent a lot of years pounding stuff into my thick old skull," Apt told the crowd.

Mission Specialist Jan Davis called the flight "a camping trip that was out of this world," and said she's looking forward to seeing the results of the Spacelab experiments."

"As astronauts, I think we have a unique perspective in seeing how many thousands of people actually

contribute to the team," Davis said. "That means the people at NASA, the people at Japan, the contractors and the people who are indirectly involved — the American people who support the space program."

Mission Specialist Mae Jemison said the mission demonstrated that the world is now at the point where it can bring together different types of people, integrate internationally and make use of all of the talent available.

"The most thrilling part of all of this was to go up to perform experiments, to be able to observe the Earth, to be able to bring back information that's important for people to understand here, to gather and to use in the future," Jemison said.

Scientists begin analyzing mountain of Spacelab-J experiment data

(Continued from Page 1)

instruments for positioning samples, the Acoustic Levitation Furnace processed its three samples and the Liquid Drop Facility made all of its runs plus several extras. The Marangoni Convection Unit finished two runs instead of one, and the Gas Evaporation Furnace processed all four of its samples.

The Crystal Growth Facility processed both of its silicon samples and the Bubble Behavior Unit, which moves

and positions bubbles using acoustics and thermal gradients, processed all four samples plus one extra run.

The Organic Crystal Facility, the Protein Crystal Growth Facility and the Shuttle Acceleration Measuring System all received additional run time.

Additional time in microgravity also enhanced several of the 19 life sciences experiments including the Enzyme Growth Experiment.

"Preliminary reports from the crew

said that at least four of the chambers did show the presence of crystals visible to the naked eye," Leslie said.

Investigators got more physiological data on Payload Specialist Mamoru Mohri for the health monitoring experiment and more microgravity exposure for the chicken embryo experiment. The experiment that studies the effects of cosmic rays on fruit flies also will be enhanced by the extra time.

Other animal experiments included a

study of brain waves of two carp — which had 12 data takes — and the fertilization of frog eggs.

Leslie said the tadpoles growing from eggs produced by the female frogs produced eggs appear normal so far.

He also reported that the electrophoresis experiments completed all the planned runs as did the visual stability and hand-eye coordination tests.

Among the experiments sponsored by JSC, the Fluid Transfer System

which creates sterile water and intravenous solutions, ran nominally, Leslie said and Mission Specialists Jan Davis and Mae Jemison were able to complete their work with the Lower Body Negative Pressure unit plus one additional ramp test.

Dr. Robert Sokolowski, program scientist, said that with Spacelab-J, the International and U.S. Microgravity Laboratory Missions, NASA's on-orbit lab time for 1992 totals one month.

Quality forum to be telecast Thursday

NASA Administrator Daniel Goldin is expected to kick off NASA's observation of National Quality Month during a satellite telecast on Thursday.

This year's theme is "Quality '92: Leadership, Innovation and Discovery." Leaders from business, industry and academia, including keynote speaker Edwin Artzt, chairman of Procter and Gamble and chairman of National Quality Month, will discuss issues related to the theme.

Goldin will open National Quality Month Forum VIII at 8:50 a.m.

Thursday. The telecast, sponsored by the American Society for Quality Control, will be shown from 9 a.m. to noon on channel 4 of the JSC Television Distribution Network and in Teague Auditorium.

Other speakers will include David Glass, president of Wal-Mart Stores; Donna Shalala, chancellor of the University of Wisconsin-Madison; David McCamus, chairman of Xerox Canada; Jan Carlzon, president of Scandinavian Airlines; Seiya Matsumoto, president of Pioneer Electronics; and Ray Groves, chairman of Ernst & Young.

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Editor Kelly Humphries
Associate Editor Kari Fluegel

Mars Observer to launch today

(Continued from Page 1)

Mars Observer's observations will resume NASA's exploration of the Red Planet after a 15-year hiatus. NASA's exploration of Mars began with the Mariner IV mission 28 years ago. The last U.S. spacecraft to visit Mars was the Viking 2 lander in 1976.

"Mars Observer will tell us far more about Mars than we've learned from all previous missions to date," said Project Manager David Evans of NASA's Jet Propulsion Laboratory. "We want to put together a global portrait of

Mars as it exists today, and with that information, we can begin to understand the history of Mars.

"By studying the evolution of Mars, as well as Venus, we hope to develop a better understanding as to what is happening to planet earth," Evans said.

"As we look even further into the future, this survey will be used to guide future expeditions to Mars," Evans explained. "The first humans to set foot on that planet will certainly use Mars Observer maps and rely on its geologic and climatic data."